

arrangement of stop valves in the main piping is an acceptable means of steadying the rudder.

(i) General arrangement plans for the main and auxiliary steering gear and their piping must be submitted for approval in accordance with subpart 50.20 of this subchapter.

§ 58.25-10 Main and auxiliary steering gear.

(a) Power-operated main and auxiliary steering gear must be separate systems that are independent throughout their length. Other systems and arrangements of steering gear will be acceptable if the Commanding Officer, Marine Safety Center, determines that they comply with, or exceed the requirements of, this subpart.

(b) The main steering gear and rudder stock must be—

(1) Of adequate strength for and capable of steering the vessel at maximum ahead service speed, which must be demonstrated to the satisfaction of the cognizant Officer in Charge, Marine Inspection;

(2) Capable of moving the rudder from 35° on either side to 35° on the other with the vessel at its deepest loadline draft and running at maximum ahead service speed, and from 35° on either side to 30° on the other in not more than 28 seconds under the same conditions;

(3) Operated by power when necessary to comply with paragraph (b)(2) of this section or when the diameter of the rudder stock is over 12 centimeters (4.7 inches) in way of the tiller, excluding strengthening for navigation in ice; and

(4) Designed so that they will not be damaged when operating at maximum astern speed; however, this requirement need not be proved by trials at maximum astern speed and maximum rudder angle.

(c) The auxiliary steering gear must be—

(1) Of adequate strength for and capable of steering the vessel at navigable speed and of being brought speedily into action in an emergency;

(2) Capable of moving the rudder from 15° on either side to 15° on the other in not more than 60 seconds with the vessel at its deepest loadline draft

and running at one-half maximum ahead service speed or 7 knots, whichever is greater; and

(3) Operated by power when necessary to comply with paragraph (c)(2) of this section or when the diameter of the rudder stock is over 23 centimeters (9 inches) in way of the tiller, excluding strengthening for navigation in ice.

(d) No auxiliary means of steering is required on a double-ended ferryboat with independent main steering gear fitted at each end of the vessel.

(e) When the main steering gear includes two or more identical power units, no auxiliary steering gear need be fitted, if—

(1) In a passenger vessel, the main steering gear is capable of moving the rudder as required by paragraph (b)(2) of this section while any one of the power units is not operating;

(2) In a cargo vessel, the main steering gear is capable of moving the rudder as required by paragraph (b)(2) of this section while all the power units are operating;

(3) In a vessel with an installation completed on or after September 1, 1984, and on an international voyage, and in any other vessel with an installation completed after June 9, 1995, the main steering gear is arranged so that, after a single failure in its piping system (if hydraulic), or in one of the power units, the defect can be isolated so that steering capability can be maintained or speedily regained in less than ten minutes; or

(4) In a vessel with an installation completed before September 1, 1986, and on an international voyage, with steering gear not complying with paragraph (e)(3) of this section, the installed steering gear has a proved record of reliability and is in good repair.

NOTE: The place where isolation valves join the piping system, as by a flange, constitutes a single-failure point. The valve itself need not constitute a single-failure point if it has a double seal to prevent substantial loss of fluid under pressure. Means to purge air that enters the system as a result of the piping failure must be provided, if necessary, so that steering capability can be maintained or speedily regained in less than ten minutes.

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(f) In each vessel of 70,000 gross tons or over, the main steering gear must have two or more identical power units complying with paragraph (e) of this section.

§ 58.25-15 Voice communications.

Each vessel must be provided with a sound-powered telephone system, complying with subpart 113.30 of this chapter, to communicate between the pilothouse and the steering-gear compartment, unless an alternative means of communication between them has been approved by the Commanding Officer, Marine Safety Center.

§ 58.25-20 Piping for steering gear.

(a) Pressure piping must comply with subpart 58.30 of this part.

(b) Relief valves must be fitted in any part of a hydraulic system that can be isolated and in which pressure can be generated from the power units or from external forces such as wave action. The valves must be of adequate size, and must be set to limit the maximum pressure to which the system may be exposed, in accordance with § 56.07-10(b) of this subchapter.

(c) Each hydraulic system must be provided with—

(1) Arrangements to maintain the cleanliness of the hydraulic fluid, appropriate to the type and design of the hydraulic system; and

(2) For a vessel on an ocean, coastwise, or Great Lakes voyage, a fixed storage tank having sufficient capacity to recharge at least one power actuating system including the reservoir. The storage tank must be permanently connected by piping so that the hydraulic system can be readily recharged from within the steering-gear compartment and must be fitted with a device to indicate liquid level that complies with § 56.50-90 of this subchapter.

(d) Neither a split flange nor a flareless fitting of the grip or bite type, addressed by § 56.30-25 of this subchapter, may be used in hydraulic piping for steering gear.

§ 58.25-25 Indicating and alarm systems.

(a) Indication of the rudder angle must be provided both at the main

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steering station in the pilothouse and in the steering-gear compartment. The rudder-angle indicator must be independent of control systems for steering gear.

(b) Each electric-type rudder-angle indicator must comply with § 113.40-10 of this chapter and, in accordance with § 112.15-5(h) of this chapter, draw its power from the source of emergency power.

(c) On each vessel of 1,600 gross tons or over, a steering-failure alarm must be provided in the pilothouse in accordance with §§ 113.43-3 and 113.43-5 of this chapter.

(d) An audible and a visible alarm must activate in the pilothouse upon—

(1) Failure of the electric power to the control system of any steering gear;

(2) Failure of that power to the power unit of any steering gear; or

(3) Occurrence of a low oil level in any oil reservoir of a hydraulic, power-operated steering-gear system.

(e) An audible and a visible alarm must activate in the machinery space upon—

(1) Failure of any phase of a three-phase power supply;

(2) Overload of any motor described by § 58.25-55(c); or

(3) Occurrence of a low oil level in any oil reservoir of a hydraulic, power-operated steering-gear system.

NOTE: See § 62.50-30(f) of this subchapter regarding extension of alarms to the navigating bridge on vessels with periodically unattended machinery spaces.

(f) Each power motor for the main and auxiliary steering gear must have a “motor running” indicator light in the pilothouse, and in the machinery space, that activates when the motor is energized.

§ 58.25-30 Automatic restart.

Each control system for main and auxiliary steering gear and each power actuating system must restart automatically when electrical power is restored after it has failed.

§ 58.25-35 Helm arrangements.

(a) The arrangement of each steering station, other than in the steering-gear compartment, must be such that the helmsman is abaft the wheel. The rim